

**Artikel Asli/Original Article**

**Effectiveness of Methadone Maintenance Therapy (MMT) and Life Style Improvement Among Opiate Dependent Patients Registered  
(Keberkesanan Program Rawatan Terapi Gantian Methadone dan Peningkatan Gaya Hidup dalam Kalangan Pesakit Berdaftar yang Bergantung pada Opiat)**

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**ABSTRACT**

*In Malaysia, drug addiction has been a big threat since 1983. As of by latest statistic by National Anti-Drug Agency in 2016, the number of drug abusers in Malaysia was 30846. Acknowledging the importance of drug abuse and relapse as a public health issue, Malaysian government had implemented Harm Reduction Programme. Under this programme, Methadone Maintenance Therapy (MMT) was launched in Oct 2005. This study was undertaken to evaluate the effectiveness of MMT programme among opiate dependent individuals in their daily life. In this study, 100 individuals from the Ministry of Health (MoH), Klinik Kesihatan Bayan Lepas (Bayan Lepas Health Clinic) and Agensi Anti-Dadah Kebangsaan (National Anti-Drug Agency) in Telok Bahang were involved. The subjects were interviewed with WHOQOL BREF questionnaires before joining the MMT programme and also after minimum 4 months of joining MMT. Results obtained were used for comparing life style implications among methadone patients before and after joining the MMT programme. Subjects were predominantly of Malay ethnicity (82%). Subjects were mostly aged between 51 to 60 years old (34%). Paired t-test was done on the WHOQOL scores at baseline (before MMT) and after minimum of 4 months enrolment for all four domains. Each domain showed significant improvement in QOL ( $P < 0.05$ ). The highest improvement was shown in the psychology domain with the mean value increment of  $15.13 \pm 17.49$ . Physical domain showed the least improvement with the mean value of  $9.39 \pm 16.21$ . This study has proven that MMT have highly contributed to improvement of quality of life among MMT clients in Klinik Kesihatan Bayan Lepas and AADK Telok Bahang.*

**Keywords:** Effectiveness; life style improvement; MMT; outcome; quality of life

**ABSTRAK**

*Di Malaysia, penagihan dadah telah menjadi satu ancaman besar sejak 1983. Daripada statistik oleh Agensi Antidadah Kebangsaan pada 2016, bilangan penagih dadah di Malaysia adalah 30846. Menyedari kepentingan penyalahgunaan dadah sebagai masalah kesihatan awam, kerajaan telah melaksanakan program pengurangan kemudaratan/risiko. Di bawah program ini, Methadone Maintenance Therapy (MMT) telah dilancarkan pada Okt 2005. Kajian ini telah dijalankan untuk menilai keberkesanan program MMT antara individu yang bergantung pada opiat dalam kehidupan seharian mereka. Dalam kajian ini, 100 subjek dari Klinik Kesihatan Bayan Lepas dan Agensi Antidadah Kebangsaan (AADK) di Telok Bahang telah terlibat. Subjek ditemu bual dengan borang soal selidik WHOQOL BREF sebelum menyertai program MMT dan juga selepas minimum 4 bulan menyertai MMT. Keputusan yang diperolehi telah digunakan untuk membandingkan implikasi gaya hidup antara metadon pesakit sebelum dan selepas menyertai program MMT. Keputusan menunjukkan subjek adalah kebanyakannya daripada etnik Melayu (82%). Kebanyakan subjek berumur antara 51 hingga 60 tahun. (34%). Ujian-t berpasangan telah dilaksanakan ke atas skor WHOQOL pada asas (sebelum MMT) dan selepas sekurang-kurangnya 4 bulan kemasukan bagi semua empat domain. Setiap domain menunjukkan peningkatan yang ketara dalam QOL ( $P < 0.05$ ). Peningkatan prestasi tertinggi telah ditayangkan dalam domain psikologi dengan peningkatan nilai min sebanyak  $15.13 \pm 17.49$ . Domain fizikal menunjukkan peningkatan sedikit dengan nilai min  $9.39 \pm 16.21$ . Ini telah membuktikan bahawa program MMT telah menyumbang kepada peningkatan taraf kehidupan dalam kalangan klien MMT di Klinik Kesihatan Bayan Lepas dan AADK Telok Bahang.*

**Kata kunci:** Keberkesanan; peningkatan gaya hidup; MMT; hasil; kualiti kehidupan

## INTRODUCTION

Drug addiction is one of the biggest global issues. Out of 16 million illicit opiate users, about 11 million of the populations were heroin users (WHO 2007). The prevalence of opiate addiction justifies the consideration of novel therapeutics. Methadone maintenance treatment is considered the effective treatment for this group of illicit opiate user by WHO guidelines.

Methadone is a synthetic opioid that blocks the effects of heroin and other prescription drugs containing opiates (Ministry of Health 2006). Methadone therapy achieves this by preventing opiate withdrawal symptoms, blocking the euphoric effects of opiates and minimizing the craving for opiates which is mainly heroin. Methadone maintenance has been shown to reduce illicit heroin use, decrease the incidence of infectious disease commonly contracted through needle sharing, to reduce criminal activity, to improve social outcome and to reduce mortality.

In Malaysia, drug addiction has been a big threat since 1983 (Ministry of Health 2005). Acknowledging the importance of drug abuse and relapse as a public health issue, Malaysian government had implemented Harm Reduction Program. Under this program, Methadone Maintenance Therapy (MMT) was launched in Oct 2005. The general goal of MMT is to improve the quality of life of opiate dependents by reducing relapse, improving their physical and mental conditions, reducing the spread of infections among opiate dependent individuals and improve psycho social functioning.

According to WHO in 2004, 0.7% of global burden of disease was because of cocaine and opiate use (WHO 2007). From 2015 World Drug Report of The United Nations Office on Drugs and Crime, a total of 246 million people worldwide from the age 15 to 64 used an illicit drug in 2013 (WHO 2007). In Malaysia, number of new cases and relapse cases reported by AADK in 2016 was 22924 and 7922 respectively (AADK 2015). As an average 56 new cases and 18 relapse cases were identified in Malaysia daily based from AADK latest statistic 2016. From 2010 to 2016, it was alarming to see the increasing trend of number of drug addicts which has been identified. In 2016, Pulau Pinang has been reported to have the highest number of drug addicts in Malaysia (AADK 2015). National Drug Agency or known as Agensi Anti Dadah Kebangsaan (AADK) in 2016 statistic revealed that total drug addicts were 5081 as compared to 4280 drug addicts in 2015 (AADK 2015).

Few studies conducted in other countries revealed that MMT program was effective in reducing opiate use as well as improving life style (Padaiga 2007; Musa 2011; Zhang 2013). In a study in Lithuania, methadone therapy was reported to improve life style of opiate dependent patients especially in physical, psychological and environmental domains (Padaiga 2007). MMT clients who completed 6 months of therapy showed significant improvement in the quality of life in the district of Tampin, Negeri Sembilan (Baharom 2012). MMT had tremendous

significant in reducing drug related crime behavior (Marsch 1998). There is big question as to where does this MMT program initiated by government does help to improve the life style of opiate dependent patients and also the opiate abuse as the statistics showed increasing trend number of drug addicts in Pulau Pinang (Ministry of Health 2006). High retention rate and good compliance among methadone patients is the key to a successful MMT program. Quality of life is based on four broad domains of life which are physical, psychological, social and environmental. The improved changes of these aspects of life are vital in preventing opiate dependent individuals to revert back to addiction. Good quality of life, in the context of addiction reduces the relapse cases. Thus, effectiveness of MMT is reflected based on the changes in quality of life of opiate dependent patients after enrolled in MMT program. Based on studies related to the critical success factor to MMT program, it is of high importance to assess the retention rate and compliance among methadone patients. In this study, the aim is to evaluate the effectiveness of Methadone Maintenance Therapy (MMT) program among opiate dependent individuals in their daily life and other specific objectives are to determine the successfulness of MMT among opiate dependents registered with Klinik Kesihatan Bayan Lepas and AADK Telok Bahang and the quality of life of MMT patients at Klinik Kesihatan Bayan Lepas and AADK Telok Bahang which leads to effectiveness of MMT.

## EXPERIMENTAL METHODS

This study was conducted through in Klinik Kesihatan Bayan Lepas and AADK Telok Bahang. Quality of life of opiate dependent individuals who enrolled in Klinik Kesihatan Bayan Lepas and AADK Telok Bahang MMT facilities was measured before and after joining MMT program. Patients were given information about the study including purpose of study and confidentiality before consent was obtained. All methadone patients aged 18 years old and above who have continuously joined the methadone program in Klinik Kesihatan Bayan Lepas and AADK Telok Bahang, Pulau Pinang for more than 4 months with maintenance dose have been included into this study. Those who were Patients who are under other facilities registered as Sistem Pendispensan Ubat Bersepadu (SPUB) were excluded from this study.

## ETHICS CONSIDERATION

This study was approved by Medical Research Ethical Committee, Ministry of Health Malaysia on 8<sup>th</sup> of August 2017 with the reference number of NMRR-17-1447-36543. Written permission of using WHOQOL-BREF questionnaire was obtained by World Health Organization (WHO).

## TOOL ASSESSMENT

This study assessing the improvement of quality of life of opiate dependent patients were done by using WHOQOL-BREF questionnaire (26 item version of WHOQOL-100) as a research tool (AADK 2015; Hasanah 1999). WHOQOL defines quality of life participants perception in four broad domains which are physical health, psychological health, social relationship and environment (AADK 2015; Hasanah 1999). The WHOQOL version in Bahasa Malaysia has been validated in Malaysia with indications of good discriminant validity, construct validity, internal consistency and test retest reliability (AADK 2015; Hasanah 1999). It is to assess the individual's perception in the context of their culture, value systems, personal goals, standards and concerns.

## STUDY TYPE AND DESIGN

This was a prospective cross sectional study involving all patients who were treated in both facilities from September 2017 till December 2017. Demographic data were collected on all subjects. As a general practice in MMT settings, each opiate dependent individual who register will be interviewed through the WHOQOL-BREF, 26 structured interviews by trained health personnel which can be counted as baseline. Trained health personnel mean a staff that were trained and currently attached to methadone clinic. All methadone patients who have joined the methadone program in Klinik Kesihatan Bayan Lepas and AADK Telok Bahang for more than 4 months were enrolled in this study. The quality of life among MMT clients showed significant improvement at least after three months of joining MMT (Maremmanni 2007). Thus, in this study four months were taken which were last quarter of 2017 were chosen. In this study after 4 months of treatment, these individuals were interviewed again with same tool. It was used for comparing the life style implications among methadone patients before and after joining MMT program. Life style improvement after minimum 4 months of joining MMT was taken as endpoint. The scoring from the WHOQOL-BREF (raw score) was transformed to the 0–100 scale scoring format, according to the guideline for the transformation of raw WHOQOL-BREF score, which is available from the WHOQOL Group. The end result gave scores in the transformed 0–100 scale format for each of the four domains in quality of life; physical, psychological, social relationships and environment. Paired t-test was used to determine the significance of the difference between the quality of life scoring at baseline and also after minimum 4 months of joining MMT.

## RESULTS

### SOCIO-DEMOGRAPHY CHARACTERISTICS OF SUBJECTS

Subjects were predominantly Malay (82%) and male (98%). The subjects were mostly aged between 51 to 60 years old (34%). 45% of the population were married,

42% were single, 4% were divorced and 9% were widow. About 83% of the subjects had secondary education. Most of the subjects were working (82%) while 18% did not have any stable income or job. The mean age of subjects starting opiate addiction was 22.8. Mean duration of subjects in Methadone Maintenance Therapy treatment was 44 months. The socio demography of subjects was listed as in Table 1. There was a vast difference between socioeconomic status of subjects before and after joining MMT. The mean of socioeconomic status before joining MMT was 1.47 (SD  $\pm$  0.502) and after joining MMT was 1.18 (SD  $\pm$  0.386). Both Figure 1 and Figure 2 showed comparison of socioeconomic status before and after joining MMT. From Figure 1, before joining MMT, 53% of subjects were working while 47% were not working. As for Figure 2, after joining MMT for a minimum of four months, 82% of subjects were working and 28% were not working.

TABLE 1. Social-demography of subjects ( $n = 100$ )

Characteristics	Frequency ( $n$ )	(%)
Gender		
Male	98	98
Female	2	2
Race		
Malay	82	82
Chinese	13	13
Indian	5	5
Age groups		
18-30	10	10
31-40	24	24
41-50	24	24
51-60	34	34
61-70	6	6
More than 70	2	2
Matrimonial status		
Married	45	45
Single	42	42
Divorced	4	4
Widow	9	9
Education Level		
No Formal Education	1	1
Primary Education	13	13
Secondary Education	83	83
Tertiary Education	3	3
Not Working	53	47
Socioeconomic status (Post)		
Working	82	82
Not Working	18	18
Mean age of starting opiates (mean $\pm$ SD)	22.8 $\pm$ 9.55	
Duration in MMT in months (mean $\pm$ SD)	43.64 $\pm$ 28.63	
Opiate relapse rate (mean $\pm$ SD)	40.65 $\pm$ 44.73	
Compliance rate (mean $\pm$ SD)	96.33 $\pm$ 6.64	

# QUALITY OF LIFE AFTER 4 MONTHS OF MMT

Paired *t*-test was done on the WHOQOL score at baseline and after minimum 4 months enrolment, for all four domains. Table 2 shows the results for pre and post MMT domains. The results shows each domain showed significant improvement, QOL ( $p < 0.05$ ).The highest improvement

was shown in psychology domain with the mean value increment of  $15.13 \pm 17.49$ ;  $p < 0.05$ , followed by social domain,  $12.66 \pm 22.75$   $p < 0.05$ , environmental domain with mean difference of  $10.16 \pm 16.03$ ;  $p < 0.05$ . Physical domain showed the least improvement with the mean value of  $9.39 \pm 16.21$ ;  $p < 0.05$ .

TABLE 2. Paired *t*-test of quality of life scores by domain at baseline and after 4 months

Domain	Baseline Score (Pre)	4-month score (Post)	Difference (mean $\pm$ SD)	95% Coinfidence Interval of the difference	<i>t</i> value	<i>p</i> value
Physical	55.72	65.12	$9.39 \pm 16.21$	-12.65,-6.15	5.74	$< 0.05$
Psychological	50.80	65.94	$15.13 \pm 17.49$	-18.66,-11.61	8.52	$< 0.05$
Social	53.37	66.02	$12.66 \pm 22.75$	-17.42,-7.89	5.28	$< 0.05$
Environment	55.21	65.36	$10.16 \pm 16.03$	-13.40,-6.91	6.20	$< 0.05$

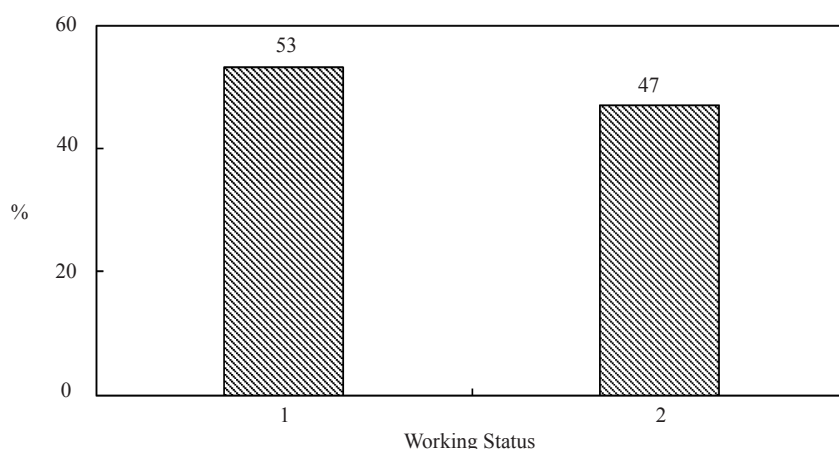


FIGURE 1. Socioeconomic status before joining MMT, 1: Working and 2: Not Working

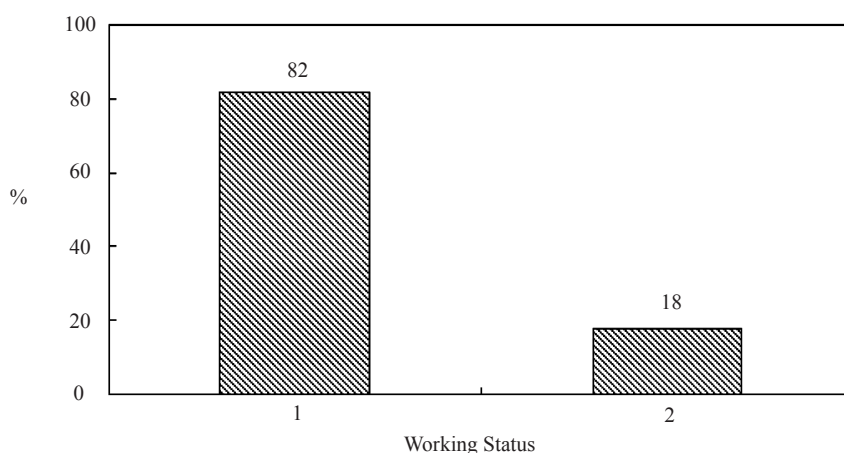


FIGURE 2. Socioeconomic status after joining MMT, 1: Working and 2: Not Working

## DISCUSSION

Findings show that high prevalence of opiate addiction is Malay males. It is similar with the national data reports

of Malay male opiate abuser about 80.73%. Highest prevalence of opiate abusers in this study is among the group of 41-60 years old correlates with the National Anti-Drug Agency report from 2011 till 2016 (Ministry



of Health 2016). This is may be due to high level of stress among this age group which is highly related to work, finance and family life problems. Relatedly, a study was done in Universiti Malaya Medical Centre (UMMC) and was found that MMT patients who were older which were aged above fifty years old, had human immunodeficiency virus (HIV) positive status and physical symptoms prophesied a poorer elevation in quality of life between baseline and current (Teoh 2016). Matrimonial status influence the factor of opiate dependent individuals to join MMT. Having commitments with their life partners encourage stability in their life through this drug substitution therapy and also higher chance of being repented from this addiction. This was proven from a study in 2006, marriage reduces drug abuse among males (Duncan 2006). As for education level, most of the subjects in this study has secondary education as this is may be due to the location of these centers of study which is within the proximity of the subjects are nearby to many schools and facilities. Thus, it also contributes to high percentage of subjects are working. Rural area in Malaysia were not left out too in midst of measuring the effectiveness of MMT. In another fascinating study in Kuala Kemaman, Terengganu MMT clinic, the quality of life of their clients showed significant improvement in all domains and notable improvement was in psychological and environment domain (Lua 2012).

Previous study has proven that patients who are under MMT have better employment status. Figure 1 and 2 shows comparison of socioeconomic status before and after joining MMT. Drinking methadone helped MMT clients to reduce cravings for illegal opiate and improved their employment status. Having more physical symptoms was another factor which predicted a poorer improvement in quality of life between baseline and follow up. Other studies have also shown a negative association between physical symptoms and quality of life, as physical symptoms affects not only the physical aspect of health, but also work-related problems such as absenteeism and reduced work productivity. Young adults are the vulnerable age groups and education should be a primer preventive effort. The minimum months of subjects enrolment in MMT in this study was decided on 4 months. However, the means months of subjects in this study was 44. The improvement in quality of life for patients who have been on MMT for duration of 5 to 7 years did not have greater improvement quality of life than patients who have been in MMT for a shorter duration.

A review on quality of life of the subjects in this study before and after joining MMT shows that there is improvement in all four domains, physical, psychological, social relationship and environment. A similar study by Huang et al. at the MMT clinic of University Malaya Medical Centre showed significant improvement in all QOL domains (2009). Another study at Hospital Tengku Ampuan Afzan Hospital MMT clinic also showed significant improvement in QOL especially in psychological domain (Ramli 2012). In this study, the significant improvement

was shown in psychological domain followed by social relationship, environment and physical domains. According to WHO, psychological domains involves bodily image, self-esteem, positive feelings and level of concentration (WHO 1998). Through MMT program, subjects in this study have built up their level of confidence and motivated with the support of their life partner to reduce their opiate addiction. Physical domain involves daily life activities, pain and dependence of medical substance and level of energy. Due to highest age group of subject falls under 41-60 years old, the level of energy and dependence of medical substance correlates with age. Perhaps, MMT program should not only concentrate on methadone dispensing but also to host more activities in MMT clinic to improve their physical domain. This study provides evidence of the effectiveness of MMT in Malaysia. Even though the numbers of opiate abusers increase within years but the quality of life of those who are under MMT program have shown significant improvement and thus could lead to normal and healthy life.

## CONCLUSION

This study has proven that MMT have highly contributed to improvement of quality of life among MMT clients in Klinik Kesihatan Bayan Lepas and AADK Telok Bahang. Methadone maintenance therapy is effective in reducing heroin use, as well as in improving social functioning and psychological symptoms. Patients on methadone maintenance therapy had a significantly better quality of life in all domains at follow-up compared to before joining MMT. However the focus should be on to increase the involvement of the clients in healthy activities which can be funded by the government to reduce on opiate addiction.

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